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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/829,929	04/11/2001	Alex Horng	HORN3008/EM/6686	8203

7590 08/29/2002
Bacon & Thomas
625 Slaters Lane - 4th Floor
Alexandria, VA 22314

EXAMINER

LE, DANG D

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 08/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/829,929

Applicant(s)

HORNG ET AL.

Examiner

Dang D Le

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it contains the word "comprises" in line 1. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 9-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 recites the limitation "the positioning hole" in line 24. There is insufficient antecedent basis for this limitation in the claim.

In addition, it is not clear if "a magnetic conductive tube" recited in line 24 being the tube recited in lines 18 and 20. Claim 15 further recites "a magnetically conductive tube" in line 2.

Should "the bobbin having a winding wound therearound, the winding having a plurality of terminals" in claim 9, line 25 be deleted? Line 23 shows the same feature.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 9, and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morley in view of Wang.

Regarding claim 1, Morley shows a brushless DC motor with axial winding and axial air gap (Figures 1 and 2), comprising:

- A casing (20);
- A pole (16) comprising a plurality of first pole edges (18) and a positioning hole (for core 12);
- A magnetically conductive tube (12) having a first end (left side, 14, Figure 2) extended through the positioning hole of the pole in an intimate contact manner and fixed to the casing (20), the magnetically conductive tube having a second end (15, right side) with a plurality of second pole edges (17, 19) having a number the same as that of the first pole edges (Figure 1), the first

pole edges and the second pole edges being alternately located with respect to each other (Figure 1);

- A bobbin (Figure 2) including a central hole through which the magnetically conductive tube extends, the bobbin having a winding (11) wound therearound, the winding having a plurality of terminals (inherently to connect to power lines);
- A rotor (21 and members between 21 and 12) including a round top (members between 21 and 12) from which a central shaft extends, the central shaft (22) being rotatably mounted in the magnetically conductive tube, the round top of the rotor having a magnetic-disc (21) securely attached thereto;

Morley dose not show:

- A drive means including a plurality of control elements and a plurality of sensing elements, the drive means further including, a plurality of contacts for electrical connection with the terminals of the bobbin; and
- Wherein the magnet disc and the first pole edges of the pole and the second pole edges of the magnetically conductive tube are repulsive to each other, and the drive means varies polarities of the first pole edges and the second pole edges to thereby drive the rotor.

For the purpose of operating the motor, Wang shows:

- A drive means (Figures 4a', 4b', 4c') including a plurality of control elements and a plurality of sensing elements (130A, 130b), the drive means further

including, a plurality of contacts (lines 120A, 120b) for electrical connection with the terminals of the bobbin; and

- Wherein the magnet disc and the first pole edges of the pole and the second pole edges of the magnetically conductive tube are repulsive to each other, and the drive means varies polarities of the first pole edges and the second pole edges to thereby drive the rotor (124, Figures 4a', 4b', 4c').

Since Morley and Wang are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include a drive means as taught by Wang for the purpose discussed above.

Regarding claim 9, it is noted that Morley also shows a brushless DC motor with axial winding and axial air gap (Figures 1 and 2), comprising:

- A casing (20);
- A pole (16, 17) comprising a tube (12) formed in a center thereof, the pole comprising a plurality of inner pole edges (19) and a plurality of outer pole edges (18), the inner pole edges and the outer pole edges being alternately located relative to each other along an angular position, the tube (12) of the pole being fixed to the casing;
- A bobbin comprising a central hole through which the tube of the pole extends, the bobbin having a winding (11) wound therearound, the winding having a plurality of terminals;

- A magnetically conductive tube (12) having a first end (14) extended through the positioning hole, the bobbin having a winding wound therearound, the winding having a plurality of terminals;
- A rotor including a round top from which a central shaft extends, the central shaft (22) being rotatably mounted in the tube of the pole, the round top of the rotor having a magnetic disc (21) securely attached thereto;

In addition, it is noted that Wang also shows a drive means including a plurality of control elements and a plurality of sensing elements, the drive means further including a plurality of contacts for electrical connection with the terminals of the bobbin; and wherein the magnet disc and the inner pole edges and outer pole edges of the pole are repulsive to each other, and the drive means varies polarities of the inner pole edges and the outer pole edges to thereby drive the rotor.

As a result, claim 9 is also rejected as discussed in claim 1 above.

Regarding claims 15-17, it is noted that Morley also shows a magnetically conductive tube mounted in the tube of the pole, the magnetically conductive tube including a plurality of pole edges having a number the same as that of the inner pole edges of the pole, the pole edges of the magnetically conductive tube and the inner pole edges of the pole being aligned with each other in angular positions thereof, and the magnetically conductive tube being in tight engagement with an inner periphery of the tube of the pole.

7. Claims 2-4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morley in view of Wang as respectively applied to claims 1 and 9 above, and further in view of Suzuki et al.

Regarding claims 2 and 10, the brushless DC motor with axial winding and axial air gap of Morley modified by Wang includes all of the limitations of the claimed invention except for the casing including a tube having an inner periphery for tight contact with the magnetically conductive tube, the magnetically conductive tube including a bearing mounted to an inner periphery thereof.

Suzuki et al. show the casing (2) including a tube having an inner periphery (3) for tight contact with the magnetically conductive tube (4), the magnetically conductive tube including a bearing (8) mounted to an inner periphery thereof for the purpose of supporting the rotor.

Since Morley, Wang and Suzuki et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the casing including a tube having an inner periphery for tight contact with the magnetically conductive tube, the magnetically conductive tube including a bearing mounted to an inner periphery thereof as taught by Suzuki et al. for the purpose discussed above.

Regarding claim 3, it is noted that Suzuki et al. also show the casing including a tube with an outer periphery, the magnetically conductive tube being mounted around

the outer periphery of the tube of the casing, the tube of the casing including a bearing securely mounted to an inner periphery thereof.

Regarding claim 4, it is noted that Morley also shows the magnetically conductive tube (12) being in tight engagement with the positioning hole of the pole (16).

8. Claims 5-6 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morley in view of Wang as respectively applied to claims 1 and 9 above, and further in view of Shiraki et al.

Regarding claims 5 and 12, the brushless DC motor with axial winding and axial air gap of Morley modified by Wang includes all of the limitations of the claimed invention except for the drive means being mounted on a circuit board, the circuit board including a central hole through which the magnetically conductive tube extends.

Shiraki et al. show the drive means being mounted on a circuit board, the circuit board (26) including a central hole for the purpose of making a complete motor.

Since Morley, Wang and Shiraki et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to mount the drive means on a circuit board, the circuit board including a central hole through which the magnetically conductive tube extends as taught by Shiraki et al. for the purpose discussed above.

Regarding claims 6 and 13, it is noted that Shiraki et al. also the circuit board including a plurality of end walls for respectively engaging with two ends of each of the pole edges of the pole (14).

9. Claims 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morley in view of Wang and Suzuki et al. as respectively applied to claims 2 and 10 above, and further in view of Mattingly.

Regarding claims 7 and 14, the brushless DC motor with axial winding and axial air gap of Morley modified by Wang and Suzuki et al. includes all of the limitations of the claimed invention except for the tube of the casing, including a support element mounted therein for supporting a distal end of the central shaft of the rotor.

Mattingly shows the tube of the casing (3), including a support element (4) mounted therein for supporting a distal end of the central shaft (1) of the rotor for the purpose of supporting the rotor.

Since Morley, Wang, Suzuki et al. and Mattingly are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the tube of the casing with a support element mounted therein for supporting a distal end of the central shaft of the rotor as taught by Mattingly for the purpose discussed above.

10. Claims 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morley in view of Wang as respectively applied to claims 1 and 9 above, and further in view of Mattingly.

Regarding claims 8 and 11, the brushless DC motor with axial winding and axial air gap of Morley modified by Wang includes all of the limitations of the claimed invention except for the round top of the rotor and the magnet disc including a metal plate mounted therebetween.

Mattingly shows the round top of the rotor and the magnet disc (12) including a metal plate (14) mounted therebetween for the purpose of supporting the rotor.

Since Morley, Wang and Mattingly are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to mount a metal plate to the magnetic disk as taught by Mattingly for the purpose discussed above.

Information on How to Contact USPTO

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dang D Le whose telephone number is (703) 305-0156. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

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308-7382 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

DDL
August 24, 2002

